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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,642	09/10/2003	David G. Therrien	25452-015	3651

30623 7590 04/05/2006		EXAMINER
MINTZ, LEVIN, COHN, FERRIS, GLOVSKY AND POPEO, P.C. ONE FINANCIAL CENTER BOSTON, MA 02111		PHAM, MICHAEL

ART UNIT	PAPER NUMBER
2167	

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/659,642	THERRIEN ET AL.
	Examiner	Art Unit
	Michael D. Pham	2167

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>10 September 2003</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-14</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-14</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>10 September 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>5/24/2004</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

Detailed Action

1. Claims 1 - 14 have been examined.

2. Claims 1 - 14 are pending.

3. Claims 1 - 14 are rejected as detailed below.

Priority

Application has claimed domestic priority. Accordingly the application has been examined with a priority date of 9/10/2002.

Specification

1.   Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:
(1) if a machine or apparatus, its organization and operation;
(2) if an article, its method of making;
(3) if a chemical compound, its identity and use;
(4) if a mixture, its ingredients;
(5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

2.   The disclosure is objected to because of the following informalities: There appears to be a typo on page 4 "emodoiments" seems to have meant to be embodiments.   Appropriate correction is required.

3.   The disclosure is objected to because of the following informalities: in figure 3 elements 11 and 13 are not described in specifications; however it's obvious that 10 and 12 are analogous.

4.   The disclosure is objected to because of the following informalities: in figure 11 element 69 is not described in specifications; it is noted that paragraph 0073 discloses most of the elements in figure 11.

5.   The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The terms "selection data" in claims 3 and 4 are not disclosed in the specification.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention. There exists an if statement, however it is indefinite as to what happens if the if

statement is false.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent

5991753 by Wilde (hereafter Wilde) in view of U.S. Patent 5276867 by Kenley et. al. (hereafter

Kenley).

Claim 1:

A method for transferring a set of files, the method comprising:

receiving metadata and stub files associated with the set of files at a destination

fileserver [Col. 5 lines 40-50, stub file has metadata and location associated with the set of files

that migrated to a migration store device.];

updating a location component in the destination fileserver to maintain a list of

repository nodes that are associated with each file in the set of files [Col. 7 lines 61-63, Col.

8 lines 11-29 and Col. 6 lines 57-67, updating bitfile ID (location) by generating a new bitfile

when the modified file is next prestaged or migrated. Further, list is generated of all the files in the file systems that are eligible for migration.];

replacing each stub file with the full content of the file associated with the stub file [col. 7 lines 40-48, file contents accessed, store copy is reloaded and the file becomes resident again.]; and

However, Wilde does not explicitly [1]disclose **while replacing each stub file, upon receipt of a client request for a specified file in the set of files, if the full content of the specified file has not yet been transferred, then replacing the stub file for the specified file with the specified file's full content, wherein replacing the stub file for the specified file is a higher priority task than replacing the stub files for non-requested files.**

On the other hand, Kenley discloses "...In another aspect of the invention, VOLUME-REQUEST signals includes signals representative of relative priority of the volume requests, and the scheduler element has a priority scheduling element for establishing the schedule in accordance with the volume request priorities. A preemption element in the scheduler enables preemptive insertion of high-priority-request data volumes in place of low-priority-request data volumes." (col. 4 lines 9-17).

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[1] Wilde discloses, Col. 8 lines 11-29, weighing age and size of each file in the list and sorting into descending order (i.e. priority) for a candidate list. Although it is obvious that if requested files occur, of course the stub file being replaced by original file takes precedence rather than migrating the file or migrating another file. Or if the file was recently accessed it should not be migrated right away. This is similar to searching websites. In that in searching websites the most often hit website would be listed as the highest priority because it is the most relevant.

Both inventions are directed towards data migration. Therefore, it would have been obvious to one of ordinary skill at the time the invention was made to have modified Wilde to have included the step of

while replacing each stub file, upon receipt of a client request for a specified file in the set of files, if the full content of the specified file has not yet been transferred, then replacing the stub file for the specified file with the specified file's full content, wherein replacing the stub file for the specified file is a higher priority task than replacing the stub files for non-requested files based on the disclosure of Kenley. A skilled artisan would have been motivated to do so for the purpose of allowing the user to obtain the most important file (i.e. most prioritized file) at the current time rather than waiting until the system processes all minor files.

Claim 2:

Wilde discloses wherein the metadata is received at a destination fileserver from a repository node [Col. 8 lines 22-29, data migrated to migration store].

Claim 3:

Wilde discloses wherein the method further comprises: prior to receiving metadata, receiving destination fileserver selection data [Col. 8 lines 11-29, migration attributes such as storage group of where the file should go to. Col. 13 lines 57-67 to Col. 14 lines 1-4, selection values by administrator].

Claim 4:

Wilde discloses wherein the method further comprises: prior to receiving metadata,

receiving source share selection data [Col. 8 lines 11-29, the list is the share selection data.].

Claim 5:

Wilde discloses file migration utilizing **stub files** (col. 5 lines 40-50 and col. 7 lines 40-48).

However Wilde does not explicitly disclose in great detail **wherein the set of files is the set of**

files that have been accessed during a specified period and wherein replacing each stub file

comprises recursively replacing the stub file associated with the file that was most-recently

accessed until all the stub files in the set of files have been replaced.

On the other hand, Kenley discloses Col. 18 lines 28-67, based in part on time since last access

(set of files that have been accessed) and staging out/in (i.e. migration) comprises looping (i.e.

generally accomplishes same task as recursion) and replacing files.

Both inventions are directed towards backup and migration systems. Therefore it would have

been obvious to one of ordinary skill at the time the invention was made to have modified Wilde

to have included **wherein the set of files is the set of files that have been accessed during a**

specified period and wherein replacing each stub file comprises recursively [2]replacing the

stub file associated with the file that was most-recently accessed until all the stub files in the

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[2] Recursion itself is not new, and is essentially a looping structure.

set of files have been replaced based on the disclosure of Kenley. One would have been

motivated to do so because both Kenley and Wilde must migrate a certain amount of files in

order to save space.

Claim 6:

Wilde discloses wherein the specified period is a most-recent period [Wilde discloses Col. 8

lines 36-37, automatically and transparently to the user. Meaning done at that moment.].

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent

5991753 by Wilde (hereafter Wilde) and U.S. Patent 5276867 by Kenley et. al. (hereafter

Kenley) further in view of U.S. Patent 6,490,666 by Cabrera et. al. (hereafter Cabrera).

Claim 7:

Wilde and Kenley do not explicitly disclose wherein the location component is a location cache

However, Cabrera discloses that the memory locations where data bits are maintained are

physical locations that have particular electrical, magnetic, or optical properties corresponding to

the data bits. That is location component stored in memory (i.e. ram[3]) [Col. 5 lines 30-34 and

Col. 2 lines 33-34]. All inventions are directed towards Hierarchal storage systems. Therefore it

would have been obvious at the time the invention was made to have modified Wilde and Kenley

to have included wherein the **location component is a location cache** based on the disclosure of

Cabrera. A skilled artisan would have been motivated to do so for the purpose of manipulating

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[3] Cache memory is a type of random access memory (RAM).

data structures recorded in main memory to store, insert, and search for requested data retrieved

from secondary storage [Col. 5 lines 35-37].

Claims 8, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over

U.S. Patent 5991753 by Wilde (hereafter Wilde) in view of U.S. Patent Application Publication

2004/0083202 by Mu et. al. (hereafter Mu).

<u>Claim 8:</u>

A data protection system comprising:

        a recovery service in communication with the fileserver API and with the file

system and operative to transfer a set of files [Wilde, col. 1 lines 35-40, migration is a

recovery service], **the recovery service having:**

        a receiving component operative to receive metadata and stub files

associated with the set of files at the fileserver[Wilde, Col. 5 lines 40-50, stub

file has metadata and location associated with the set of files that migrated to a

migration store device.];

        a location updating component in communication with the receiving

component and operative to maintain a list of repository nodes that are

associated with each file in the set of files[Wilde, Col. 7 lines 61-63, Col. 8 lines

11-29 and Col. 6 lines 57-67, updating bitfile ID (location) by generating a new

bitfile when the modified file is next prestaged or migrated. Further, list is

generated of all the files in the file systems that are eligible for migration.]; **and**

a stub file replacement component in communication with the

receiving component and operative to replace each stub file with the full

content of the file associated with the stub file [Wilde, col. 7 lines 40-48, file

contents accessed, store copy is reloaded and the file becomes resident again.].

a fileserver [Wilde, Col. 1 line 52, fileservers] **having:**

file system operative to store client files [Wilde does discloses Abstract and Col.

1 lines 40-65, users have files (i.e. client files) and there is a filing system,];

However, Wilde does not explicitly [4]discloses **a fileserver API operative to communicate with**

a repository, and a fileserver file transfer module in communication with the file system

and operative to receive files for the file system from at least one repository.

On the other hand, Mu discloses data processing system coupled to storage resources via

communication links [0037]. Further disclosing One or more client computers may also be

coupled to data processing system via communication links.

Both inventions are directed to file migration and HSM. Therefore, it would have

been obvious to one of ordinary skill at the time the invention was made to have modified

Wilde to have included **a fileserver API operative to communicate with a repository,**

and a fileserver file transfer module in communication with the file system and

operative to receive files for the file system from at least one repository based on the

disclosure of Mu. A skilled artisan would have been motivated to do for the purpose of

providing *communication* to storage resources and data processing systems when

connected to a network. Furthermore, allowing exact storage locations to be applied

correctly in a storage hierarchy 0006 and 0013.

Claim 11:

As to claim 11, wherein the system further comprises a local repository having:

a local repository node API adapted for communicating with the fileserver API [Mu,

0037, One or more client computers may also be coupled to data processing system via

communication link];

a local repository file transfer module in communication with the fileserver file

transfer module and adapted for transferring files to the fileserver file transfer module

[Mu, 0037]; and

a data mover in communication with the local repository API and operative to

supervise the replication of files from the local repository to the fileserver[Wilde, Col. 5

lines 20-30, transition file maintained during replication process.].

Claim 12:

As to claim 12, wherein the fileserver API is operative to communicate with a network and

wherein the system further comprises:

a remote repository having:

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[4] Wilde does discloses col. 1 lines 50-65, managing data repositories for networks of workstations and fileservers, and Figure 1, network transfers files and further col. 5 lines 20-30, moving files.

a remote repository node API adapted for communicating with the network

[Mu, 0037, One or more client computers may also be coupled to data processing system

via communication link];

a remote repository file transfer module in communication with the local file

transfer module and adapted for transferring files to the fileserver file transfer

module [Mu, 0037]; and

a data mover in communication with the remote repository API and operative to

supervise the replication of files from the remote repository to the fileserver[Wilde,

Col. 5 lines 20-30, transition file maintained during replication process.].

Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S.

Patent 5991753 by Wilde (hereafter Wilde) and U.S. Patent Application Publication

2004/0083202 by Mu et. al. (hereafter Mu) further in view of U.S. Patent 5276867 by Kenley

et. al. (hereafter Kenley) and U.S. Patent Application Publication 2003/0078946 by Costello et.

al (hereafter Costello).

Claim 9:

As to claim 9, wherein the system further comprises

a policy cache operative to store a protection policy associated with a share [Wilde,

Col. 13 lines 57-67 and col. 14 lines 1-4, a policy for performing migration.]

However, Wilde and Mu do not explicitly [5]disclose **a filter driver operative to intercept input/output activity initiated by client file requests and to maintain a list of modified and created files since a prior backup**;

On the other hand Kenley discloses "...In another aspect of the invention, VOLUME-REQUEST signals includes signals representative of relative priority of the volume requests, and the scheduler element has a priority scheduling element for establishing the schedule in accordance with the volume request priorities. A preemption element in the scheduler enables preemptive insertion of high-priority-request data volumes in place of low-priority-request data volumes." (col. 4 lines 9-17). That is, a type of filter by client requests.

All inventions are directed towards data migration. Therefore, it would have been obvious to one of ordinary skill at the time the invention was made to have modified Wilde and Mu to have included the step of **a filter driver operative to intercept input/output activity initiated by client file requests and to maintain a list of modified and created files since a prior backup** based on the disclosure of Kenley. A skilled artisan would have been motivated to do so for the purpose of allowing the user to obtain the most important file (i.e. most prioritized file) at the current time rather than waiting until the system processes all minor files.

Lastly, Wilde, Mu, and Kenley do not explicitly disclose a mirror service.

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[5] Wilde discloses a candidate list for migration.

However, Costello discloses a mirror service wherein mirroring may be used in conjunction with

striping in which different portions of data volume are written to different disks to increase speed

access (0082).

All inventions are directed to data storage and in particular provide a hierarchical storage

management system.   Therefore, it would have been obvious to one of ordinary skill at the time

the invention was made to have modified Wilde, Mu, and Kenley to have included the step of

a mirror service in communication with the filter driver and with the policy cache,

the mirror service operative to prepare modified and created files in a share to be

written to a repository as specified in the protection policy associated with the share

based on the disclosure of Costello. A skilled artisan would have been motivated to provide a

mirror service because it would increase the availability of data in mass storages [0082].

Managing system data is a goal of all inventions.

Claim 10:

As to claim 10, wherein the system further comprises:

a location cache in communication with the mirror service and operative to indicate

which repository should receive an updated version of an existing file [Costello discloses in

0084, a volume manager that updates are made on all nodes in the cluster or none of the nodes

using two-phase commit logic. After cluster initialization it is the config server that coordinates

changes. The mirror server maintains the mirror specific state information about whether a

revive is needed and which mirror legs are consistent. That is, determining updates to versions.];

and

a location manager coupled to the location cache and operative to update the location

cache when the system writes a new file to a specific repository node [Wilde discloses Col. 7

lines 61-63, Col. 8 lines 11-29 and Col. 6 lines 57-67, updating bitfile ID (location) by

generating a new bitfile when the modified file is next prestaged or migrated. Further, list is

generated of all the files in the file systems that are eligible for migration.].

Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S.

Patent 5991753 by Wilde (hereafter Wilde) in view of U.S. Patent Application Publication

2004/0083202 by Mu et. al. (hereafter Mu) and U.S. Patent Application Publication

2003/0078946 by Costello et. al (hereafter Costello).

<u>Claim 13:</u>

A method for storing data, the method comprising: providing a fileserver having:

   a file system operative to store client files [Wilde does discloses Abstract and Col. 1

lines 40-65, users have files (i.e. client files) and there is a filing system];

   a policy component operative to store a protection policy associated with a set of

files [Col. 13 lines 57-67 to col. 14 lines 1-4 policy factors. And Col. 14 lines 30-34, protection

of files from migrating.];

   determining a caching level as stored in the policy component [Col. 8 lines 1-10 and

col. 13 lines 57-67 to col. 14 lines 1-4]; and **comparing the caching level against the**

utilization [col. 8 lines 1-10]; **recursively, determining a utilization of the fileserver** [Col. 8 lines 1-10]; and

if the utilization exceeds the caching level [col. 8 lines 1-10], then

creating a file migration candidate list [col. 8 lines 11-21];

staging out one candidate file [Col. 7 lines 40-65, resident and non-resident that is staging in and staging out];

replacing the candidate file with a stub file [Col. 8 lines 22-29 and col. 5 lines 40-50]; and

determining if the utilization of the fileserver still exceeds the caching level [Col. 8 lines 1-10].

However, Wilde does not explicitly [6]discloses **a fileserver file transfer module in communication with the file system and operative to transfer files from the file system to at least one repository.**

On the other hand, Mu discloses data processing system coupled to storage resources via communication links [0037]. Further disclosing One or more client computers may also be coupled to data processing system via communication links.

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[6] See footnote 4.

Both inventions are directed to file migration and HSM. Therefore, it would have been

obvious to one of ordinary skill at the time the invention was made to have modified Wilde to

have included **a fileserver file transfer module in communication with the file system and**

operative to transfer files from the file system to at least one repository based on the

disclosure of Mu. A skilled artisan would have been motivated to do for the purpose of

providing *communication* to storage resources and data processing systems when connected to a

network.

Although both Wilde and Mu do not explicitly disclose a mirror service.

However, Costello discloses a mirror service wherein mirroring may be used in conjunction with

striping in which different portions of data volume are written to different disks to increase speed

access (0082).

All inventions are directed to data storage and in particular provide a hierarchical storage

management system. Therefore, it would have been obvious to one of ordinary skill at the time

the invention was made to have modified Wilde and Mu to have included the steps of

a mirror service in communication with the policy cache, the mirror service

operative to prepare modified and created files in a set of files to be written to a repository

as specified in the protection policy associated with the set of files;

a fileserver API coupled to the mirror service and operative to communicate with a

repository;

based on the disclosure of Costello. A skilled artisan would have been motivated to provide a

mirror service because it would increase the availability of data in mass storages [0082]. This

would further managing system data which is a goal of all inventions.

Claim 14:

As to claim 14, Wilde discloses wherein if determining if the utilization of the fileserver still

exceeds the caching level indicates that the utilization exceeds the caching level then staging

out another candidate file on the candidate list and again determining if the utilization of

the fileserver exceeds the caching level [col. 8 lines 11-29, migrating files until utilization

percentage is down to a selected level.].

Conclusion

The prior art made of record listed on PTO-892 and not relied upon, if any, is considered

pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Michael D. Pham whose telephone number is (571)272-3924.

The examiner can normally be reached on Monday - Friday 8am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, John Breene can be reached on 571-272-4107. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael Pham   Debbie Le
Art Unit 2167   Art Unit 2168
Examiner   Primary Examiner
03/30/2006   03/30/2006